

Application No. 10/535,723
Amdt. dated April 23, 2007
Response to the Office Action of March 6, 2007

REMARKS/ARGUMENT

This response is submitted under 37 C.F.R. § 1.111 to the Office Action of May 25, 2006.

Claims 2-8 and 11-14 are pending in the application with claim 13 having been currently amended, claims 1, 9, and 10 canceled, and new claim 14 added. New claim 14 is supported in the specification on page 3, beginning at line 24.

No additional fee is believed to be due.

The specification has been amended at the point indicated above to change the term "haloalkyl" to "halogenoalkyl." This has been done solely to make this terminology consistent with that employed in the definition of Y, which precedes it. No change in meaning is intended.

Claims 2-13 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Dann et al., (WO 02/16322) in view of either Rylander or Frebault A. (Hcaplus 1906:119496).

WO 02/16322 to Dann et al. discloses a process for the preparation of 2-aminomethylpyridine derivatives falling within the definition of the compound of formula (I) according to the present invention, by catalytic hydrogenation of 2-cyanopyridine derivatives falling within the definition of the compound of formula (II) according to the present invention. Nevertheless, the process disclosed in Dann et al. is a catalytic hydrogenation conducted in the presence of a catalyst chosen from a list of possible catalysts in which Raney nickel is not cited (*see* page 4, lines 1-2: Raney nickel is not cited). Furthermore, the use of acetic acid to perform

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the catalytic hydrogenation is not disclosed in Dann et al. (*see* page 4, lines 13-21: acetic acid is not cited).

Thus, even if Dann et al. disclose a process for preparing compounds similar to compounds of formula (I) according to the present invention by catalytic hydrogenation of similar starting material, the experimental conditions of these processes are totally different (catalyst, solvent, etc.).

As mentioned above, Dann et al. disclose a process for the preparation of 2-aminomethylpyridine derivatives falling within the definition of the compound of formula (I) according to the present invention, by catalytic hydrogenation of 2-cyanopyridine derivatives falling within the definition of the compound of formula (II) according to the present invention using a catalyst chosen as being palladium, platinum, ruthenium, nickel or cobalt (preferably palladium), in the presence of an alcohol solvent, at a temperature of from 0°C to 60°C (preferably of from 20°C to 30°C), under a hydrogen pressure of from 1 to 4 bar.

The teaching of Dann et al. is clearly focused on the use of a palladium catalyst to prepare the compound of formula (I) starting from the compound of formula (II) (*see* page 4, lines 5-6 & Example 1, page 10). Palladium catalysts are well known by the ordinarily skilled artisan as facilitating by-product dehalogenation reactions. Furthermore, the teaching of Dann et al. clearly and strongly recommends the use of a catalyst inhibitor to improve selectivity of the reaction by limiting these dehalogenation by-product reactions (*see* page 4, line 29, to page 5, line 10). Thus, nothing in the teaching of Dann et al. discloses or even suggests the use of Raney nickel in acetic

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acid to prepare 2-aminomethylpyridine substituted by a halogen atom by catalytic hydrogenation of 2-cyanopyridine substituted by a halogen atom in acceptable yields at an industrial scale and avoiding the use of catalyst inhibitors which are expensive and difficult to be used in an industrial process to prevent by-product dehalogenation reactions.

Further, there is no disclosure or suggestion in Dann et al. of employing a pressure in the range of from 10 to 20 bar in the reaction.

Rylander discloses, *inter alia*, that the products of nitrile hydrogenation depend markedly on the catalyst and on whether the nitrile is aliphatic or aromatic. He teaches that nickel, nickel boride, and cobalt appear to be the best catalysts for converting low molecular weight *aliphatic* nitriles to primary amines, particularly when the reduction is carried out in ammoniacal methanol. He also states that *aromatic* amines on reduction give a mixture of benzylamines, dibenzylamines, and ring reduced products *that depend on catalyst, solvent, and reaction conditions*. (See page 141.) There is no disclosure of what such catalyst, solvent, or reaction conditions ought to be to obtain a desired end-product, nor any mention of carrying out the process in an acid, such as the acetic acid of the present invention.

Cyanopyridines, of course, are not aliphatic nitriles, but are aromatic nitriles, and Rylander mentions that the preferred catalysts for converting low aromatic nitriles to amino derivatives are platinum, rhodium, or palladium (see page 141). No mention is made of nickel catalysts.

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Frebault discloses that primary and secondary aromatic amines can be obtained by the direct hydrogenation of aromatic nitriles in the presence of reduced nickel. Specifically, the reaction is carried out in a tube containing reduced nickel imbedded in iron filings, through which a rapid current of hydrogen is passed through at about 250° (presumably centigrade), while the nitrile is allowed to fall directly into the tube drop by drop, which does not sound like a commercially feasible process. The only nitriles mentioned are benzonitrile and *p*-tolunitrile, neither of which contain any ring-substituted halogen, which presents problems overcome by the present invention. Further, and again, there is no disclosure of carrying out the hydrogenation in the presence of an acetic acid solvent.

Neither Rylander nor Frebault were dealing with cyano/amino moieties that were substituted with a halogen atom, which is an essential feature of the present invention. Both references clearly state that when reducing benzonitrile (i.e., aromatic nitriles) into benylamine (i.e., aromatic amines), side-reaction products (i.e., di- or tribenzylamine) are generated in very high proportion. See page 141 of Rylander and the last sentence of Frebault. Such by-products are *not* generated using the process of the present invention. The last paragraph of the example of the present application shows that a 97% yield of 2-aminomethyl-3-chloro-5-trifluoromethyl pyridine over 3-chloro-2-cyano-5-trifluoromethylpyridine is obtained, which excludes production of side-products in high quantities. A process generating such high levels of by-products would not be acceptable on an industrial scale level and this would have discouraged the person of ordinary skill in the art from using the teachings of Rylander and/or Frebault.

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Clearly, the secondary references fail to supplement the deficiencies of Dann et al., described above, as a reference.

Thus, it is requested that the rejection of claims 2-13 under 35 U.S.C. 103(a) as being unpatentable over Dann et al. in view of either Rylander or Frebault be withdrawn.

Claims 11 and 12 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that

Applicants regard as their invention. Specifically, according to the Examiner:

Claims 11-12 contain the trademark/tradename Raney nickel.

"Where a trademark or trade name is used in a claim as a limitation to identify or describe particular material or product, the claim does not comply with the requirements of 35 U.S. C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App.

1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify the source of goods, and not the goods themselves. Thus a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a nickel catalyst, however, it is not clear which nickel catalyst is described, since 'Raney Nickel'

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can describe several nickel catalysts, and accordingly, the
identification/description is indefinite."

This rejection is respectfully traversed.

First, "Raney nickel" is not a registered trademark. Applicants acknowledge that "Raney" is a registered trademark, owned by W. R. Grace & Co. Corporation, for "catalyst in powder, ingot or lump form, comprising either hydrogenating catalysts being special forms of nickel, copper, cobalt, iron or other metal, or an alloy of aluminum with nickel, copper, cobalt, iron or other metals."

It is the Applicants position that "Raney nickel" designates a solid catalyst composed of fine grains of a nickel aluminum alloy used in many industrial processes and very well-known by the skilled artisan. Definitions of such a catalyst can easily be found in any encyclopedia, chemistry books, or even on the Internet.

As a specific example, Applicants' representative went online into the *USPTO Patent Full-Text and Image Database* and search for "Raney" in the specifications of issued U.S. patents. This resulting in 15,875 hits. He then searched for "Raney nickel" in specifications and got 14,405 hits. Finally, he searched the *issued claims* for the term "Raney nickel" and got 779 hits. Clearly, this is a term very well-known in the art and one that the USPTO has permitted in issued patent claims many, many times. It is submitted that in view of this record, it would be highly discriminatory against the present Applicants if they were to be denied a patent on the

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grounds that "Raney nickel" is indefinite. Accordingly, it is requested that the rejection of Claims 11 and 12 under 35 U.S.C. 112, second paragraph, be withdrawn.

In view of the foregoing, it is submitted that this application is now in condition for allowance and an early Office Action to that end is earnestly solicited.

Respectfully submitted,

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Date



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